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HIV/AIDS knowledge and high risk sexual practices among southern California Vietnamese

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Abstract

***Objectives*—Vietnamese immigration to the U.S. since the conclusion of the Vietnam war has been substantial and in Orange County, CA, Vietnamese Americans comprise 3% of the population (the largest community in the US). Our objective was to collect data on the HIV/AIDS knowledge, attitudes and self-reported high risk behaviours within this community.**

***Methods*—A survey instrument was administered anonymously in Vietnamese to 532 respondents in their homes. Individuals from three population strata were randomly sampled: men 18 to 35 years old (N = 193); men 36 to 45 years old (N = 137); and women 18 to 35 years old (N = 202). Data were gathered on: (1) degree of acculturation; (2) knowledge and attitudes towards HIV/AIDS; and (3) self-reported sexual and other high risk practices.**

***Results*—Survey data indicated that 38% of respondents were very worried about themselves and 83% were worried about a family member getting AIDS. Knowledge about actual modes of HIV transmission was generally accurate, but a substantial minority still believed that HIV can be transmitted through casual contact, and 68% from needles used in hospitals. Women demonstrated less accurate knowledge than men on five key items. Quarantine of the HIV infected was agreed to by 45%. Twenty-nine percent did not believe that the epidemic would affect them personally, and 49% stated that they did not have enough information about AIDS to protect themselves. Regarding sexual practices, 31% reported never having had sex. Of the others, 8% had two or more sexual partners in the prior 12 months. No same sex behaviour was reported. Six percent of men had visited a female prostitute; of these, 24% had visited 2 or more in the prior 12 months; half of encounters in this time period were outside the US. Substantial percentages of sexually active, unmarried respondents indicated that they never use (17–40%) or only sometimes use (10–32%) condoms. Less than 1% had used injection drugs.**

***Conclusions*—Education should be targeted at the Vietnamese community of southern California to improve knowledge that HIV cannot be contracted through casual contact, to convey information about methods for self-protection, and to reduce high risk sexual practices such as unprotected sex, sex with multiple partners and sex with prostitutes.**

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Introduction

Vietnamese immigration to the US since the conclusion of the Vietnam war has been substantial. By 1990 the U.S. Vietnamese population had grown to 600,000.[1] The largest communities of Vietnamese in the US are found in California, where 46% reside.[2] Vietnamese are the fastest growing Asian-Pacific minority in the United States, and by 2030 they will vie with Filipinos as the largest in the nation.[3] In Orange County, California, the Vietnamese population comprises over 3% of the county's 2·4 million residents. Since 1984 there has been a cumulative total of 18 cases of acquired immune deficiency syndrome (AIDS) in Southeast Asians in Orange County, and the rate among Vietnamese in California as of 1991 was 6·4 per 100,000.[4] The prevalence and risk of human immune deficiency virus (HIV) infection in this community is unknown. For the first decade of the AIDS epidemic in the US Southeast Asian communities were often presumed to be at less risk than the general US population. The small number of known AIDS cases among Asian Americans is suspected to be attributable partly to underreporting, and comparatively low AIDS and sexually transmitted disease (STD) case rates have been observed in Orange County. Asymptomatic HIV-infected Asians are quite possibly not accounted for. This community has not been frequently targeted for studies of behavioural risk.

Prior data on sexual attitudes and practices among Vietnamese Americans are limited, but a study of 316 attendees at a Women, Infants, and Children (WIC) program in Los Angeles indicated that multiple sexual partners were frequent.[5] A survey on HIV/AIDS knowledge, attitudes and practices of a random sample of Vietnamese respondents was conducted by a refugee resettlement centre in San Francisco. It was found that 12·7% of respondents (N = 205) reported having two or more

sexual partners in the year prior to the interview and 3·5% reported having 5 or more partners.[6] A survey of southern California university students suggested that sexual conservatism among young Asian-Americans may be limited to the initiation of sexual activity. Once sexually active, behaviours were similar to non-Asian counterparts and facilitative of HIV infection.[7]

The first AIDS case among Asian Americans was diagnosed in 1981.[8] There has been a low cumulative US incidence of AIDS in the collapsed category of "Asian and Pacific Islanders", and data on AIDS cases and HIV infection have not been collected systematically and stratified by specific Asian ethnic groups. Americans of various East and Southeast Asian origins have all been classified under a single category. The low proportion of reported AIDS cases among Vietnamese may have contributed to misconceptions about their risk for HIV. As a conservative culture, stigmatisation by Vietnamese of individuals engaging in behaviours with elevated risk of HIV infection, and other protective cultural and behavioral factors, may be associated with Vietnamese Americans having little risk of infection. Vietnamese culture is characterised by strong taboos against open discussions or exhibits of sexuality, and condemnation of homosexuality.[8]

This community survey was one component of a three part project. A seroprevalence study of HIV infection among individuals at potentially elevated risk of infection within the Vietnamese community was also conducted.[9] Vietnamese (N = 874) from six county sites were tested during 1992 and the number of cases detected and risk factors were: county HIV/STD clinics—5/223 (2·3%), all men who had sex with men; men's jail—1/122 (0·8%), risk factors unknown; juvenile hall—1/145 (0·7%), risk factors unknown; injection drug abuse program—0/33; syphilis screening—0/284; and drunk driving remedial program—0/67. A higher prevalence of HIV infection was found than would have been suggested by previously reported testing data in Southeast Asians. There has been little evidence thus far to support the existence of many injection drug users in the Vietnamese community; however, IDU behaviour among adolescent gang members has been reported. Ethnographic study and structured interviews with a small group of Vietnamese homosexual men were employed to determine the range of sexual behaviours in that population and suggested the existence of a distinct and well-organized homosexual subgroup within the Vietnamese community of Orange County.[10] Among heterosexual Vietnamese men, use of prostitutes in the county and across the border in Tijuana, Mexico was found in the ethnography from STD investigation of penicillin-producing *Neisseria gonorrhoeae* cases presenting at county sites.[10] Our objective was to gather data on HIV/AIDS knowledge, attitudes and self-reported high risk practices among Vietnamese residents in Orange County.

Methods

A community survey was conducted in Orange County, California in 1992, using face-to-face interviews. The survey, comprised of 110 items, was completed within 75 minutes in the homes of respondents. Only a single respondent per household was interviewed, and all interviews were conducted in complete privacy from other family or household members. All responses were anonymous. Interviews were conducted in Vietnamese or English, according to respondent preference. Interviewers and respondents were matched by ethnicity and sex. Fourteen Vietnamese interviewers received four weeks of training on HIV/AIDS epidemiology, survey design and interviewing techniques. A campaign announcing the survey in English language and particularly in local Vietnamese media preceded survey implementation and included newspaper and magazine articles, public service announcements, interviews on radio and television, and the mailing of flyers to Vietnamese homes.

The survey consisted of four components: (1) respondent demographics; (2) degree of respondent acculturation; (3) HIV/AIDS knowledge and attitude; (4) self-reported sexual practices and high risk behaviours. The latter were assessed using a self-completed written answer tearsheet that provided response options to be completed by the respondent without interviewer observation. No participants were excluded because of inability to read. To further increase confidence in anonymity of responses, respondents enclosed the tearsheet within an envelope which was sealed and deposited by the respondent into a pouch containing other similarly completed tearsheets. No individual identifiers were linked to the data obtained from the sexual practices/high risk behaviour tearsheet or the remainder of the survey.

Sampling was random and performed on an age-stratified basis. Three study groups were identified for survey purposes based upon potential for high risk sexual and other practices, and to ensure adequate gender and age coverage of the population of interest. The three study groups included: (1) males 18–35 years old; (2) males 36–45 years old; and (3) females 18–35 years old. The minimum objective for sample size was 300 respondents, including 100 completed interviews per age-sex group. The ages of respondent groups were limited in order to ensure adequate numbers to conduct stratified statistical analyses. Younger aged Vietnamese were targeted because this reflects the demographic make-up of Vietnamese Americans within Orange County, and because younger respondents, who were suspected of being more sexually active, may be at an elevated risk for HIV infection. Respondents were selected randomly from a commercial register developed by local Vietnamese merchants of the addresses of Vietnamese households throughout the county and used for home marketing purposes. This strategy avoided problems associated with sampling from the telephone

Table 1 Construction of an acculturation score and index (Vietnamese Community Survey, Orange County, CA)

Questions included in acculturation score:
- Do you usually go to a Vietnamese or English speaking Doctor?
- Are you able to talk to hospital or other medical staff in English?
- Are you able to complete medical forms written in English by yourself?
- What language do you usually speak ..... at home?
  ..... with your friends?
  if working .... at work?
- In what language are the newspapers and magazines that you read?
- What is the ethnic background of the people you consider to be your closest friends?
- Do you participate in celebrating ..... Vietnamese holidays?
  ..... American holidays?
- In what language would you prefer to receive information regarding AIDS?
- Do you ..... read & speak ..... or ..... speak only ..... Vietnamese?
  ..... English?

Acculturation score range: 0–80

Acculturation index: composed of three equal range categories

More Vietnamese	0–26
Bi-Cultural	27–53
More Western	54–80

directory, such as exclusion of households without telephones or having unlisted numbers, and names listed without an accompanying address (common practices in this community). The register included 7688 (approximately 42% of all) Vietnamese households in the county. Because multi-family domiciles are common in this community, we estimate that the register provided potential access to more than 50% of Vietnamese American households within the county. Sample recruitment was conducted at the homes of prospective respondents. Within households, when more than one household member met age and sex eligibility criteria (and gender match with interviewer), a single respondent was selected using a random numbers table.

Acculturation Score and Index: An acculturation score and index derived from the behavioural acculturation score of Celano and Tyler[11] was constructed. Thirteen items were considered for inclusion in the acculturation score. These items assessed the degree of participation in American social and cultural activities, use of and facility with the English language, and ethnicity of friends. A reliability analysis was conducted for each of the three study groups. Based on these analyses, 11 items were used for the final acculturation score. The standardised item Chronbach alpha were 0·83, 0·81 and 0·87 for the younger male, older male and younger female study groups, respectively.

Table 1 outlines the construction of the acculturation score and index. The score ranged from 0–80. An index was structured on the basis of three equal range categories, including culturally more Vietnamese (0–26), bi-cultural (27–53), and culturally more Western (54–80). The acculturation score was correlated with such predictors of acculturation as length of time in the United States (Spearman rho = 0·53, 0·34 and 0·64, all with $p < 0·001$ for each of the study groups); income (rho = 0·36, 0·52, and 0·45, $p < 0·001$ for each); and education (rho = 0·32, 0·54 and 0·48, $p < 0·001$ for each).

Frequencies of responses to knowledge, attitude and practice items were tabulated by demographic and acculturation characteristics across study group. Knowledge and attitudes data were compared to national figures derived from a recent US National Health Interview Survey (NHIS).[12] Statistical tests of significance (chi square, *t* test) were conducted on differences observed and discriminant analysis was performed to assess the effectiveness of attitudes for predicting high risk behaviours.

Table 2 Characteristics of the survey sample. Vietnamese Community Survey, Orange County, CA

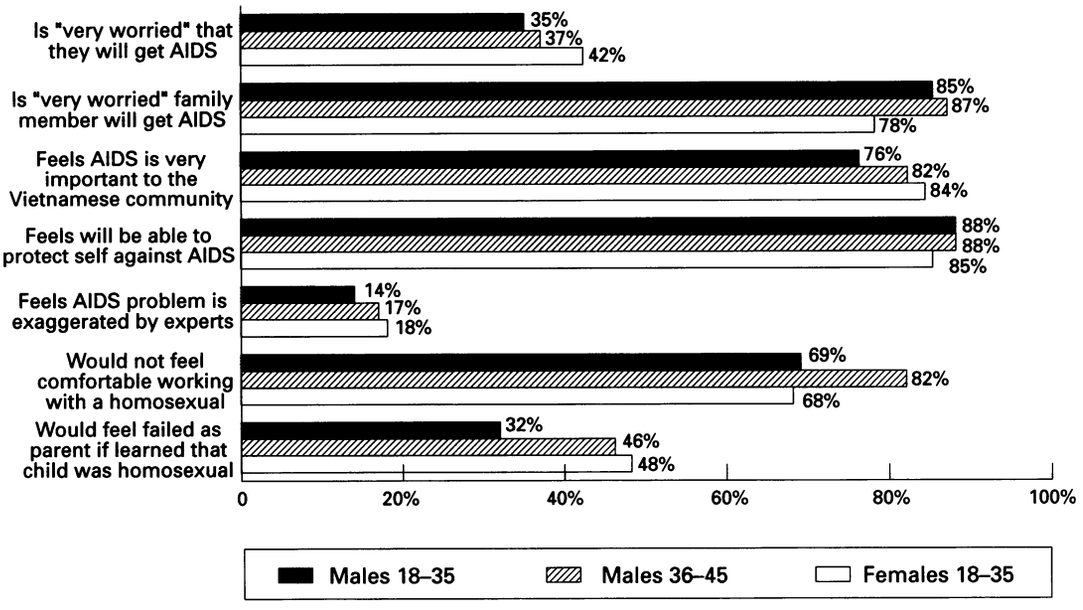
	Males 18–35	*Males 36–45*	*Females 18–35*
Mean Age (Standard Deviation) (years)	26·1 (5·7)	40·5 (2·9)	26·8 (5·9)
Mean Number of Years in US (Standard Deviation) (years)	9·6 (7·5)	11·8 (5·0)	8·2 (6·1)
Mean Number of Years in Orange County (Standard Deviation)	8·1 (6·8)	9·5 (4·7)	6·4 (5·3)
Marital Status:			
Single	72%	12%	51%
Divorced/Separated	1%	3%	5%
Widowed	1%	1%	0%
Married	27%	84%	44%
Annual Family Income:			
Less than–$10,000	32%	21%	34%
$10,000–$29,999	36%	33%	29%
$30,000–$49,999	19%	22%	22%
$50,000 or more	13%	24%	15%
Employment Status:			
Employed–full time	42%	62%	31%
Employed–part time	16%	9%	18%
Unemployed	41%	28%	50%
Unknown	1%	0%	1%
Education:			
Mean Highest Grade Completed (Standard Deviation)	13·1 (3·0)	13·8 (3·2)	12·4 (3·4)
Acculturation By Study Group:			
More Vietnamese	12%	15%	33%
Bi-Cultural	64%	69%	40%
More Western	24%	16%	27%

Results

I. Characteristics Of Survey Sample and Response: Table 2 illustrates characteristics of the 532 respondents interviewed, which included 193 men 18–35 years old (36%), 137 men 36–45 years old (26%) and 202 women 18–35 years old (38%). We estimate that this represents 2·9% (532) of all Vietnamese American households in Orange County. Contact was made by interviewers in 79% of addresses sampled. Of households where an eligible respondent lived and where this individual was available for interview, the response rate was 86% (refusal rate 14%). Households where a contact was not made on initial attempt were re-visited twice. Contact was completed in 88% of randomly sampled households, including those that were excluded as ineligible and new move-ins that were not Vietnamese. Most respondents (84%) were interviewed in Vietnamese.

Respondents had been in the United States for approximately 8–12 years, and in Orange County for 8–10 years. Younger men tended to be single, while older men were married and women were roughly equally married or single. Only 5% of single, divorced or separated respondents indicated that they were living with a sexual partner. As indicated by annual family income, the sample was broadly representative of socioeconomic status, with

Figure 1 Attitudes about HIV/AIDS.



more lower income respondents. Younger men and women tended to be unemployed because they were students (32% and 24%, respectively), but a substantial percentage of older men (28%) were unemployed. Most respondents (84%) chose to complete the survey interview in the Vietnamese language. Respondents were mostly Buddhist (46%) or Catholic (45%).

II. Degree of Acculturation: Respondents were generally bicultural across all three sample strata (table 2). Majorities of respondents in both male categories were bicultural as well as a large majority of women. If not bicultural, women fell into two equal groups of more Vietnamese or more Western. If not bicultural, younger men were more Western. Length of residence in the US was correlated with degree of acculturation for each respondent group.

III. Knowledge About HIV Transmission: Vietnamese respondents demonstrated high levels of knowledge with respect to the actual modes of HIV transmission (table 3). For men in both age strata, this surpassed levels demonstrated in the US national survey (NHIS).[12] Respondents were less frequently accurate, however, about exceptional (possible but highly unusual) modes of HIV transmission, including HIV infection from medical use of needles or blood transfusion. Substantial percentages of all three response groups had incorrect perceptions of these transmission risks in the US setting. Myths about HIV transmission were common, but less so than in the NHIS sample. Mistaken beliefs were less common among Vietnamese Americans. For example, respondents believed the virus could be contracted through casual contact such as touching, coattendance at school with an infected child, working in occupational settings with an infected individual, and from toilet seats or shared eating utensils.

IV. General Knowledge About HIV/AIDS: All respondent groups had little personal knowledge of an individual with AIDS or HIV infection (2–5%) (table 3). Large majorities of all respondents were aware that HIV infection may be asymptomatic, that the virus could be contracted from a single exposure, and were aware of the availability of the HIV test (23% had been tested, a high percentage likely due to US immigration testing requirements). Fewer women than men felt that they were getting enough information to protect themselves from HIV infection, (42% versus 53% and 59% for men). Women generally had lower levels of knowledge than men and also

Table 3 Knowledge about HIV transmission and AIDS. Vietnamese Community Survey, Orange County, CA

	Percent Giving Correct Response			
	Males 18–35	*Males 36–45*	*Females 18–35*	*1991 NHIS*
Actual modes of HIV Transmission:				
The AIDS virus can be passed on during sexual intercourse	97%	99%	98%	95%
You can get the AIDS virus by sharing needles for drug use	97%	99%	99%	95%
A pregnant woman with the AIDS virus can give it to her baby	90%	88%	96%	94%
Exceptional modes of HIV Transmission:				
A person can get the AIDS virus from				
Needles used in local hospitals	9%	18%	7%	—
Receiving a blood transfusion	19%	20%	7%	—
Myths about HIV Transmission				
A person can get the AIDS virus from				
A curse put on them by someone	92%	91%	72%	—
An ancestor's "bad actions"	86%	83%	67%	—
Shaking hands with or touching someone who has the AIDS virus	62%	56%	36%	—
Attending school with a child who has the AIDS virus	63%	60%	32%	39%
Working near someone who has the AIDS virus	56%	45%	31%	39%
Toilet seats	49%	46%	24%	28%
Sharing eating utensils with someone infected with AIDS virus	48%	43%	19%	19%
General AIDS Knowledge				
Personally know someone with HIV/AIDS	3%	2%	5%	—
A person with HIV/AIDS can look and feel healthy	82%	83%	71%	—
You can get AIDS even if you have sex once without a condom	79%	82%	76%	—
Have heard about the AIDS blood test	93%	93%	75%	—
Getting enough info to protect self from AIDS	59%	53%	42%	—
Prefer to receive AIDS info in Vietnamese	36%	45%	55%	—

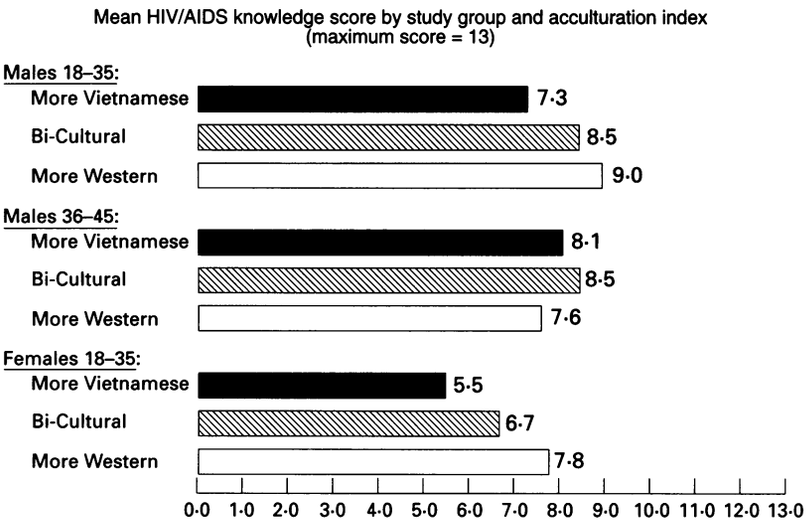


Figure 2 HIV/AIDS knowledge.

indicated a stronger preference for AIDS communications in the Vietnamese language.

V. Attitudes About Risk for HIV/AIDS: Vietnamese respondents were moderately concerned about individual risk for HIV infection (fig 1). Twenty-nine percent of respondents believed that AIDS would not affect them personally. Much greater concern was expressed about the risk of a family member becoming infected. Large majorities (76%–84%) believed that AIDS is a very important issue to the Vietnamese community, and also felt that they would be able to protect themselves as individuals against the virus. Large variations by age or gender were not apparent for these responses. Low percentages (14–18%) of individuals expressed concern that AIDS was being exaggerated by experts. Ten percent agreed with and 8% were uncertain about the statement that it is difficult for Vietnamese people to get AIDS regardless of their sexual practices. Eleven percent of respondents agreed with the statement that the risk of acquiring an STD is not high enough to bother with a condom during sex.

VI. Attitudes That May Impede HIV Prevention: Older men frequently stated (72%) that condoms interfere with sexual enjoyment, compared to 48% of younger men and 28% of women (32% were uncertain). Fifteen percent of respondents indicated that their sexual partner would be offended if they suggested using condoms, and differences between all groups were small. Uncertainty about whether condom use would offend partners was high (37%). Respondents agreed (93%) that it is important to choose sexual partners carefully, but 75% also believed it was difficult to worry about the consequences of sex when one is having sex. In response to a question about whether pre-marital sex is "okay" if the couple is planning to get married, large group differences were observed with 22% of young men, 34% of older men and 55% of women disagreeing with the statement. Extramarital sex was viewed widely (87%) as wrong under any circumstances. Feelings of discomfort in working in a setting where a homosexual was employed were expressed frequently by all groups, but particularly by older men (82%) (fig 1). Respondents also indicated fear of homosexuality in a response about whether they would feel that they had failed as a parent if a child expressed this sexual preference (32–48%, 14% were uncertain). Thirty-six percent of young men, 45% of older men and 55% of women agreed with the statement that people with AIDS should be quarantined.

VII. Knowledge About HIV/AIDS By Study Group And Acculturation Index: More highly Westernised young men and women had statistically significant higher levels of knowledge about HIV transmission and more accurate AIDS knowledge than their less acculturated age and sex counterparts (fig 2). Among older men, level of knowledge was not associated with degree of the acculturation. All groups' scores indicate a substantial need for improved education about incorrect modes of HIV transmission.

VIII. Self-Reported HIV Risk Behaviours: High percentages of younger men and women denied any history of sexual activity (table 4). There was no association between whether respondents reported premarital sex and level of acculturation. Men in both age categories reported a history of sex with a prostitute of the opposite sex (10–11%), and sex with a prostitute during the prior 12 months (3–7%). Four percent of men reported sexual contact with a prostitute in another country; two-thirds of these occurred in Mexico and the rest in Vietnam. Multiple partners of the opposite sex were reported by men (6–8%) to a greater extent than by women (2%) during the prior 12 months. Low percentages of other high risk behaviours and no homosexual behaviour was reported. Forty-six percent reported never and 21% reported sometimes using condoms during vaginal sex. Of those with sexual experience, 37% of younger men, 37% of older men, and 50% of women reported never using condoms. Of those having sexual experience and not married, 24% of younger men, 17% of older men, and 40% of women reported never using condoms. Only 1% reported ever having anal sex. Three percent indicated that they had been diagnosed with an STD in the past. Injection drug use was reported by 0·4% of respondents (a

Table 4 Self-reported HIV risk behaviours (Vietnamese Community Survey, Orange County, CA)

	Males 18–35	*Males 36–45*	*Females 18–35*
No sexual experience	38%	5%	40%
More than 1 opposite sex sex partner in last 12 months	8%	6%	2%
Ever had sex with another man (males)	0%	0%	—
Ever had sex with bisexual male (females)	—	—	1%
Ever had sex with an opposite sex prostitute	11%	10%	0%
Sex with an opposite sex prostitute in the last 12 months	7%	3%	0%
Ever had sex with an injection drug user (IDU)	0%	0%	0%
Ever injected self with drugs	0%	1%	1%

single male and female). Ten percent reported having used alcohol to the point where they did not remember what they did (15% of both male groups and 3% of women); almost all of these individuals indicated such use within the past 12 months. Higher levels of knowledge appeared in groups with greater frequency of reported high risk practices.

Prevalence of high risk practices was not associated with acculturation or marital status for any respondent group. Attitudes indicating low perceived personal risk of HIV were moderately predictive of self-reported behaviours of more frequent prostitute and less frequent condom use. The discriminant function correctly predicted prostitute use 73% and condom use 64% of the time. There was no association between whether respondents indicated that they were able to adequately protect themselves from HIV/AIDS and any reported high risk behaviours.

Discussion

These data indicate that the Vietnamese American community of southern California is differentiated with respect to HIV/AIDS concerns, knowledge, attitudes and risk by sex, age, and degree of acculturation. AIDS is viewed as an important issue by the community and has generated more anxiety about family members' risk for infection than among respondents themselves. Large percentages of all three respondent groups are not at all worried about personal risk of infection. While all three groups could identify the known routes of transmission, all had extensive misconceptions about practices that have low actual infective risk (e.g., transfusion, toilet seats, or hospital needles). Women and older men were particularly misinformed. Of particular concern is the high approval (36%–55%) given to quarantine, a discriminatory and ineffective strategy for HIV/AIDS control. The accuracy of general HIV/AIDS knowledge in this community, on issues that have been the focus of many preventive education campaigns, was similar to that found in northern California, with a correct response rate of 80% or better on about half of items.[6]

Practices with heightened risk for HIV (multiple sexual partners or sex with a prostitute in the last 12 months, ever used intravenous drugs) were reported by 15% of men 18–35 and 10% of men 36–45. Four percent of women reported multiple sex partners in the last 12 months, sex with a bisexual man or injection drug use. These findings are comparable to previous surveys among Vietnamese.[5,6] Prostitute use was the most frequently reported high risk practice among men, and sex with multiple partners in the prior year was the most common high risk practice reported among women. While same sex behaviour among men was not reported in the survey, evidence for it was found in the ethnographic component.[10] Ethnography also suggested the existence of a network for using Mexican female prostitutes at bars just across the border in Tijuana and Ensenada, including organised transportation from Orange County.[10] The risk for female partners having sexual contact with such men, and particularly older men, is significant because 84% of older male respondents in our survey were married yet 10% acknowledged prostitute use (3% during the past year). These groups are likely to overlap. As a percentage of *sexually active* men, however, more young men proportionally frequented prostitutes than their older counterparts (18% versus 11% ever; 11% and 3% in the last 12 months, respectively). This is tru as well for having multiple sex partners in the prior year, with 13% of sexually active younger men having had multiple partners, in contrast to 6% of older men or 3% of women. Significant attitudinal barriers to condom use also exist for all groups, including women.

Five of 7 infected individuals detected in the seroprevalence component of the project were men who have sex with men.[9] Because no survey respondents reported homosexual behaviour, the stigma of this sexual orientation may have contributed to a social desirability response set on these items. Injection drug use was also infrequently reported in the community survey. The findings of our studies differ from earlier assumptions that Vietnamese Americans have little or no risk for HIV infection. Vietnamese Americans may be at a risk for HIV infection equal to other individuals in American society engaged in similar high risk practices. A behavioral protective effect is evident at the present time with respect to the lack of reported homosexual and IDU behaviours, and the delay of sexual activity until early adulthood.

Homosexual and IDU behaviours may exist but because of strong social motives to deny their existence, may not be readily detected in a face-to-face survey design. Similarly, the heterosexual high risk practices reported here are likely to be underestimates. High risk behavioural practices among at least gay Vietnamese American men appear to be creating a worrisome rate of infection which is also likely to be underreported.[9] However these findings have limited generalisability to the greater population of Vietnamese in the United States. Orange County is an affluent community, and the Vietnamese within this jurisdiction are likely to have higher income, educational and perhaps acculturation levels than other members of the US Vietnamese population. More acculturated Vietnamese are likely to agree to a home interview, and this may have biased some of our results. Furthermore, our use of a commercial register to randomly access approximately 50% of the county population of Vietnamese Americans introduces possible problems of representativeness and generalisability to the entire Orange County Vietnamese community. A comparison of the demographic profile of our sample with that of the greater Vietnamese American population of the community found that they were in general concordance. Improved methods for sampling the entire population base in the face of the known

biases of telephone sampling in this community will be important to future research with Vietnamese Americans.

The implications of these data for public health policy and practice are that HIV/AIDS preventive education needs to be explicitly targeted at the Vietnamese community, but should be accompanied by additional research to better define the expression of high risk practices and the best modalities for intervention. The low Vietnamese seroprevalence noted in previous studies may be explained partly by the finding that 38% of males aged 18–35 and 40 percent of females aged 18–35 reported no sexual experience in the community survey. Sex before marriage is taboo in Vietnamese culture.[7] Extramarital sex was also viewed as strongly negative by our survey respondents. Elevated rates of infection among Vietnamese Americans may be emerging later in the course of the epidemic if this demographically young group of immigrants has delayed sexual activity (including same gender sex) until adulthood. This would result in little early transmission and an increasing number of infections in subsequent decades of the epidemic. The increasing incidence of AIDS cases among homosexual and bisexual Asian men in San Francisco during the late 1980s supports a hypothesis that HIV entered this community later than it did among non-Asian counterparts.[13]

Acculturation may have a powerful impact on the modest protective behaviours reported. If young Vietnamese Americans are adopting pre-marital and earlier initiation of sexual activity as a part of general acculturation to life in the US, this could portend an increasing prevalence of high risk sexual practices and risk of infection in this age group. Countering this is a trend of greater acculturation associated with higher levels of HIV/AIDS knowledge among young Vietnamese men and women. However, among young men at least such knowledge did not appear to translate into less frequent high risk practices. This is similar to the association of acculturation with higher levels of HIV/AIDS knowledge among Hispanics.[14] More acculturated Vietnamese gay men have sexual encounters with non-Vietnamese partners and could thus introduce infection to the community.[10] Preventive education generally should develop communications that recognise and address the spectrum of acculturation within the Vietnamese American community.

Future research about high risk behaviours and their prevention in the Vietnamese population should focus on the subgroups of gay men and their support network, and on heterosexual men using prostitutes in California and Tijuana bars as well as at coffee houses and massage parlours which may serve as sites for prostitution. Vietnamese gang members who may use illicit injection drugs should also be further studied. Another risk for HIV infection concerns temporary return migration to Vietnam for commerce or tourism, which transits through Thailand, a nation with both high HIV prevalence and a large prostitution industry. An estimated 12,000 Vietnamese from Orange County visited Vietnam in 1991,[15] and 9% of our survey respondents had visited Vietnam within the past two years. This number may increase dramatically as US-Vietnamese economic and political relations normalise.

With a history of strong social taboos against homosexuality in Vietnamese culture, the stigmatising attitudes demonstrated in this survey are not surprising. Increased education and communication would benefit the community in reducing the fear and discomfort related to the presence of Vietnamese gay men, so that effective prevention efforts can focus on individuals with the greatest risk of HIV infection. Compelling evidence of the potential impact of such communication and of the community's ability to address these problems was observed during a local conference that was sponsored by the project to disseminate the research findings. For the first time, leaders of the Vietnamese community of Orange County, including Vietnamese medical leadership, met in a common forum with gay representatives and addressed each other directly. Clearly, while HIV infection and high risk practices remain relatively confined within this population at present, they represent significant threats to the public health of the Vietnamese American community, and all opportunities should be employed to reduce the spread of the virus through improved preventive education that is linguistically, culturally, gender and age appropriate.

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